

Math 473: Section 1

Winter 2019

Instructor: Darrin Doud
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Time: 11-11:50 AM
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Office Hours: MWF 2-2:50 PM
or by appointment

Course Description: A representation of a group G is a homomorphism from G into a group of a fixed type. In this course, we will study linear representations of finite groups, or in other words, homomorphisms from finite groups G into matrix groups (linear groups) with complex entries. These representations of a group are often easier to study than the group itself, and that they provide a good deal of information about the group. An important tool that we will use is the character of a representation, which is the composition of the representation with the trace map. This character is particularly easy to compute with, since it is just a map (not usually a homomorphism) from G to \mathbb{C} . However, the character of a representation determines the representation, and hence contains all the information given by the representation. Thus the study of character theory helps us to study groups.

Textbook: We will use the textbook *Representations and Characters of Groups, Second Edition* by James and Liebeck as our main text. Once we complete the material in the textbook, we will proceed based on lecture notes prepared and distributed by the instructor.

Homework: Homework will be assigned each class day, and will be due on the following class day by 5:00 PM. Late homework will not be accepted, but in order to accommodate illness or other unexpected difficulties within the semester, six homework assignments will be dropped. Much of the homework will consist of problems from the text, but additional problems will often be assigned. Homework will collectively be worth 60% of the grade.

Midterm: We will have one midterm exam, which will be an open-book take-home exam. The exam will be handed out on Monday, February 25, and will be due on Friday, March 1 by 5:00 PM. The midterm exam will count for 20% of your grade.

Final Exam: The final exam will be an in-class closed-book exam during the scheduled final period, Saturday, April 20, 2019, from 11:00 AM to 2:00 PM. The final exam will count for 20% of your grade.

Grading Scale: A standard grading scale will be used to assign grades: 93 and up for an A, 90 and up for an A–, 87 and up for a B+, etc. There may be a slight adjustment, but if so, it will only act to raise grades.

Online Information: A web page for the course will be maintained at

<http://www.math.byu.edu/~doud/Math473>.

It will contain up-to-date information about homework assignments and due dates.

Calculators: Calculators (or computers) may be used on homework and take-home exams. On the final, calculators will be neither allowed nor helpful.

Standard University Policies

Honor Code: In keeping with the principles of the BYU Honor Code, students are expected to be honest in all of their academic work. Academic honesty means, most fundamentally, that any work you present as your own must in fact be your own work and not that of another. Violations of this principle may result in a failing grade in the course and additional disciplinary action by the university. Students are also expected to adhere to the Dress and Grooming Standards. Adherence demonstrates respect for yourself and others and ensures an effective learning and working environment. It is the university's expectation, and every instructor's expectation in class, that each student will abide by all Honor Code standards. Please call the Honor Code Office at 422-2847 if you have questions about those standards.

Preventing Sexual Misconduct: In accordance with Title IX of the Education Amendments of 1972, Brigham Young University prohibits unlawful sex discrimination against any participant in its education programs or activities. The university also prohibits sexual harassment-including sexual violence-committed by or against students, university employees, and visitors to campus. As outlined in university policy, sexual harassment, dating violence, domestic violence, sexual assault, and stalking are considered forms of "Sexual Misconduct" prohibited by the university.

University policy requires all university employees in a teaching, managerial, or supervisory role to report all incidents of Sexual Misconduct that come to their attention in any way, including but not limited to face-to-face conversations, a written class assignment or paper, class discussion, email, text, or social media post. Incidents of Sexual Misconduct should be reported to the Title IX Coordinator at t9coordinator@byu.edu or (801) 422-8692. Reports may also be submitted through EthicsPoint at <https://titleix.byu.edu/report> or 1-888-238-1062 (24-hours a day).

BYU offers confidential resources for those affected by Sexual Misconduct, including the university's Victim Advocate, as well as a number of non-confidential resources and services that may be helpful. Additional information about Title IX, the university's Sexual Misconduct Policy, reporting requirements, and resources can be found at <http://titleix.byu.edu> or by contacting the university's Title IX Coordinator.

Student Disability: Brigham Young University is committed to providing a working and learning atmosphere that reasonably accommodates qualified persons with disabilities. If you have any disability which may impair your ability to complete this course successfully, please contact the University Accessibility Center (UAC), 2170 WSC or 422-2767. Reasonable academic accommodations are reviewed for all students who have qualified, documented disabilities. The UAC can also assess students for learning, attention, and emotional concerns. Services are coordinated with the student and instructor by the UAC. If you need assistance or if you feel you have been unlawfully discriminated against on the basis of disability, you may seek resolution through established grievance policy and procedures by contacting the Equal Employment Office at 422-5895, D-285 ASB.